

## **Background: What is a tessellation?**

A tessellation is any pattern made of repeating shapes that covers a surface completely without overlapping or leaving any gaps. A checkerboard is a tessellation made of squares. The squares meet edge to edge with no gaps and no overlapping areas. The pattern of bricks on a wall is a tessellation made of rectangles.

Over 2,200 years ago, ancient Greeks were decorating their homes with tessellations, making elaborate mosaics from tiny, square tiles. Early Persian and Islamic artists also created spectacular tessellating designs. More recently, the Dutch artist M. C. Escher used tessellation to create enchanting patterns of interlocking creatures, such as birds and fish.

Making tessellations combines the creativity of an art project with the challenge of solving a puzzle.

## **Part One: Making a Translation Tessellation**

Suppose you wanted to cover a floor with tiles. You could cover it with square tiles, since squares fit together without leaving any gaps.

In this activity, you're going to transform a rectangle into a more interesting shape, then make a tessellation by repeating that shape over and over again.

## **EXPLORING TESSELLATIONS**

Materials:

- Ruler
- Scissors
- Blank paper
- Pencil
- Transparent tape
- Colored markers or pens

Create your own Tessellation

The appearance of your tessellation should be neat! Your tessellation (pattern) should cover the ENTIRE page (no gaps or unintentional white spaces). You need to turn in the template figure you used to create your tessellation. Coloring should be in between the lines, and No wrinkled or torn projects! You must use a figure created using one of the nibbling methods.

## **What to do**

1. Begin by creating a "template" like we did in class. REMEMBER it must fit into each other. Be sure to label all the pieces.
2. Once the template has been created, place your template at any of the four corners of your blank paper and trace your first figure. (the squares on the graph paper should align with the original square you started with, and therefore your template may hang off the edge of the paper.
3. Once your figure has been traced slide it or reflect it and trace your next figure (whether you reflect for slide it depends on what you created.)
4. Continue step 3 until the entire page is covered. All your figures on the paper should fit together so that it looks like a puzzle. Figures at the edge will only be partial images
5. Once you have the page covered in your tessellation, begin to add color in the figure. The figured can be animated as well
6. Be creative and have fun with the project!